B2

-- The conditions are preferably determined as at least one parameter among the fundamental conditions of the object to be exposed, the resist material, and a backward-scattering radius. --

Please substitute the paragraph beginning at page 15, line 3, with the following. A marked-up copy of this paragraph, showing the changes made thereto, is attached in Appendix A.

B3

-- Fig. 5 shows the first electron optical system array LA1. Each of the first electron optical system arrays LA1 has an upper electrode plate UE, an intermediate electrode plate CE, and a lower electrode plate LE, in each of which a plurality of doughnut-shaped electrodes corresponding to a plurality of apertures is arranged. Each of the first electron optical system arrays LA1 is constructed by laying up these three electrode plates through the intermediary of insulating materials. --

IN THE CLAIMS

Please AMEND claims 1 and 7 as follows. A marked-up copy of the amended claims showing the changes made thereto is attached. Note that all the claims currently pending in this application, including those not currently being amended, have been reproduced below for the Examiner's convenience.

B4

Sub C1

1. (Amended) A charged particle beam exposure system which draws a pattern on an object to be exposed by a plurality of charged particle beams emitted from a plurality of element optical systems, said system comprising:

c1
B4,d
Cont

(a) a storage device for storing:

(i) a standard dose data for controlling the irradiation of charged particle beams to an object to be exposed;

(ii) plural pieces of proximity effect correction data for correcting the irradiation of the charged particle beams for each incidence position with respect to the object to be exposed, in order to reduce the influence of a proximity effect; and

(iii) calibration data for correcting variations in the irradiation dose among the plurality of the charged particle beams emitted from the plurality of element optical systems; and

(b) a controller for controlling the irradiation of each of the charged particle beams, based on the standard dose data, the proximity effect correction data, and the calibration data.

2. A charged particle beam exposure system as claimed in claim 1, wherein the standard dose data includes bit map data which is determined depending on the pattern to be exposed.

3. A charged particle beam exposure system as claimed in claim 1, wherein the standard dose data includes the data defining the bit map data and a ratio of the irradiation time with respect to the non-irradiation time.

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Cont

4. A charged particle beam exposure system as claimed in claim 1, further comprising obtaining means for obtaining the calibration data by measuring variations in the irradiation dose among a plurality of the charged particle beams.

5. A charged particle beam exposure system as claimed in claim 4, wherein said obtaining means includes a Faraday cup.

6. A charged particle beam exposure system as claimed in claim 1, further comprising selecting means for selecting one piece of data suitable for the proximity effect correction with respect to the standard dose data, from plural pieces of the proximity effect correction data stored in said memory device.

7. (Amended) A method for correcting exposure data for drawing a pattern on an object to be exposed by a plurality of charged particle beams emitted from a plurality of element optical systems, said method comprising the steps of:

creating a standard dose data for each irradiation position of the charged particle beams in order to expose a standard pattern on the object to be exposed;

creating or renewing a plurality of the proximity effect correction data for each irradiation position, depending on conditions of the object to be exposed;

selecting any one piece of the proximity effect correction data, from plural pieces of the proximity effect correction data for each irradiation position;

B4 cont'd

performing a proximity effect correction with respect to the standard dose data based on the selected data, and exposing a pattern on the object to be exposed;

evaluating the exposed pattern, and judging whether the selected one piece of proximity effect correction data is the optimum data for controlling the standard dose data;

determining the optimum proximity effect correction data for controlling the standard dose data in accordance with the judgment;

measuring, by a sensor, the irradiation dose of the charged particle beams from each element optical system, the irradiation dose having been subjected to a correction by the proximity effect correction data; and

determining the calibration data of each of the element optical systems, based on the irradiation dose measured in said measuring step.

8. A method for correcting exposure data as claimed in claim 7, wherein whether the selected one piece of proximity effect correction data is the optimum data for controlling the standard dose data is judged by comparing the exposed pattern and the standard pattern by a visual inspection.

9. A method for correcting exposure data as claimed in claim 7, wherein whether the selected one piece of proximity effect correction data is the optimum data for controlling the standard dose data is judged by evaluating means for comparing the exposed pattern and the standard pattern.

B4 con'd

10. A method for correcting exposure data as claimed in claim 7, wherein the standard dose data includes bit map data which is determined depending on the pattern to be exposed.

11. A method for correcting exposure data as claimed in claim 7, wherein the standard dose data includes the data defining the bit map data and the ratio of the irradiation time with respect to the non-irradiation time.

12. A method for correcting exposure data as claimed in claim 7, wherein the proximity effect correction data is data not depending on the pattern to be exposed, but depending on the conditions of the object to be exposed.

13. A method for correcting exposure data as claimed in claim 12, wherein the conditions are determined as at least one parameter among the fundamental conditions of the object to be exposed, the resist material, and a backward-scattering radius.

14. A method for correcting exposure data as claimed in claim 7, wherein the sensor in said measuring step includes a Faraday cup.

15. A method for manufacturing a device, comprising the steps of:

providing an exposure system as claimed in any one of claims 1 through 5;

exposing a pattern on a wafer using the exposure system; and